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Europe; the other on the primitive flint implements found in the gravels on the chalk plateau of Kent. Although they both appeared before, they have now been published with additions.

Their conclusions may be briefly stated. The author thinks man probably lived on the Thames and the Somme in pre-glacial times, a period he would put at 30,000 to 50,000 years ago. The worked flints of the plateau—generally small, extremely rude and never ‘compound’ (*i. e.*, used with handles)—he attributes to these early men. Numerous illustrations of them are inserted, from which their artificial character is evident. The author’s discussion of the questions involved is able and satisfying.

D. G. BRINTON.

SCIENTIFIC NOTES AND NEWS.

ASTRONOMICAL.

DR. SEE, of the University of Chicago, announced in the *Astronomical Journal* of November 13th that the well-known binary star 70 Ophiuchi exhibited anomalies in its motion which could only be explained on the supposition that there is a non-luminous perturbing body in the system. This matter acquires especial interest from the fact that this star is one of those binaries for which we possess a really accurate orbit. The theory of this star’s motion published recently by Prof. Schur in the *Astronomische Nachrichten* is perhaps the most elaborate investigation of a double star orbit yet made. It was therefore very surprising to hear that the mean of thirteen nights’ observations by three American observers gave the error of Schur’s ephemeris as nearly five degrees in position angle, although only three years had elapsed since the computation of his orbit. The matter cannot yet be regarded as settled, for Prof. Schur shows in the last number of the *Astronomische Nachrichten* that the American observations are not in agreement with his own most recent heliometer observations, which agree very closely with his ephemeris. On the other hand, they are supported by the most recent observations at Paris by M. Callandreau,

though these are in disaccord with those of Herr Ebell at Berlin. It is to be hoped that numerous observations of this most interesting star will be made in the near future. H. J.

PROF. E. C. PICKERING announces in Circular No. 4 from the Harvard College Observatory that a new star in the constellation Centaurus was found by Mrs. Fleming on December 12, 1895, from an examination of the Draper Memorial photographs. Its approximate position for 1900 is in R. A. $13^h 34^m .3$, Dec. $-31^\circ 8'$. Attention was called to it from the peculiarity of the spectrum on Plate B 14151, taken at Arequipa on July 18, 1895, with the Bache Telescope, exposure 52m. The spectrum resembles that of the nebula surrounding 30 Doradus, and also that of the star A. G. C. 20937, and is unlike that of an ordinary nebula or of the new stars in Auriga, Norma and Carina. This object is very near the nebula N. G. C. 5253, which follows $1^h 28$, and is north $23''$. No trace of it can be found on 55 plates taken from May 21, 1889, to June 14, 1895, inclusive. On July 8, 1895, it appeared on a chart plate, B 13965, and its magnitude was 7.2. On Plate B 10472 taken July 10, 1895, its magnitude was also 7.2. On December 16, 1895, a faint photographic image of it, magnitude 10.9, was obtained with the 11-inch Draper Telescope, although it was very low, faint and near the sun. On this date, and on December 19, it was also seen by Mr. O. C. Wendell with the 15-inch Equatorial as a star of about the eleventh magnitude. An examination with a prism showed that the spectrum was monochromatic, and closely resembled that of the adjacent nebula. Although the spectrum is unlike those of the new stars in Auriga, Norma and Carina, yet this object is like them in other respects. All were very faint or invisible for several years preceding their first known appearance. They suddenly attained their full brightness and soon began to fade. Like the new stars in Cygnus, Auriga and Norma, this star appears to have changed into a gaseous nebula.

ANTARCTIC EXPLORATION.

The Century for January contains an article by Mr. Borchgrevink describing ‘The First Landing on the Antarctic Continent,’ which is

the only account of his experiences which he has contributed for publication. He writes that he believes that Cape Adare is the very place where a future scientific expedition might stop safely even during the winter months. From this spot several accessible spurs lead up to the top of the cape, and from there a gentle slope runs on to the great plateau of Victoria Land. The presence of the penguin colony, their undisturbed old nests, the appearance of dead seals (which were preserved like Egyptian mummies, and must have lain there for years), the vegetation to the rocks, and lastly the flat table of the cape above, all indicate that here is a place where the powers of the Antarctic Circle do not display the whole severity of their forces. Neither ice nor volcanoes seemed to have raged on the peninsula at Cape Adare, and a future scientific expedition might well choose that place as a center of operations. On this particular spot there is ample space for house, tents and provisions.

Mr. Borchgrevink offers to be the leader of a party to be landed either on the pack or on the mainland near Colman Island. From there he would work toward the south magnetic pole, calculated to be in latitude $75^{\circ} 5'$, longitude 150° E. Should the party succeed in penetrating so far into the continent, the course should, if possible, be laid for Cape Adare, there to join the main body of the expedition. As to the zoölogical results of future researches, great discoveries may be expected. It would indeed be remarkable if on the unexplored Victoria continent, which probably extends over an area of 4,000,000 square miles, there should not be found animal life hitherto unknown in the southern hemisphere. It is of course a possibility that the unknown land around the axis of rotation might be found to consist of islands joined only by perpetual ice and snow; but the appearance of the land, the color of the water, with its soundings, in addition to the movements of the Antarctic ice, point to the existence of a mass of land much more extensive than a mere group of islands.

GENERAL.

Nature has in recent numbers urged the need of employing scientific experts and scientific

methods in the public service. Twenty years ago a Royal Commission urgently advised the appointment of a Ministry and Council of Science. Its recommendations have never been carried into effect, and *Nature* deplores the lack of men scientifically trained and of proved ability and originality in the government departments. The United States government and the separate States undoubtedly do more for the advancement of education and science than does any other country, yet the administration compares unfavorably not only with France, where M. Berthelot, the great chemist, is Minister of Foreign Affairs, but also with Great Britain where the Cabinet includes men such as Lord Salisbury, Mr. Balfour and the Duke of Devonshire, who take sincere and intelligent interest in the advancement of science.

THE Lecomte prize (50,000 fr.) of the Paris Academy of Sciences has been awarded to Prof. Ramsay and Lord Rayleigh for the discovery of Argon. The Valz prize has been awarded to Mr. W. F. Denning for astronomical work. The Albert Lévy prize (50,000 fr.) of the Paris Academy of Medicine has been awarded to Dr. Behring and Dr. Roux for the discovery of the serum treatment of diphtheria.

THE *British Medical Journal* learns that the Calcutta municipality has decided that Dr. Haffkine's anti-cholera inoculation experiments are to be continued there for another year, and have assigned a grant of 7,500 rupees for this purpose.

MR. FRANK M. CHAPMAN, of the American Museum of Natural History, will give the following lectures, 'On Birds, their Habits and Instincts,' under the auspices of Columbia College, in the Academy of Medicine, New York: January 7th, 'Distribution and Migration;' January 14, 'Sexual Relationships and Nesting Habits;' January 28, 'Color: its Nature and Uses;' February 4, 'Modification of Structure by Habit.'

THE Chief of the Weather Bureau, Mr. Willis L. Moore, has answered an inquiry from the *Scientific American*, to the effect that the department is considering the feasibility of using weather forecasts as cancellation stamps in the post-office.

THE memoir of G. J. Romanes, edited by Mrs. Romanes, consists chiefly of letters, including an important correspondence with Darwin. It is expected that it will be published this month or in February.

WE learn from *Nature* that Prof. Bonney was presented with his portrait on December 16 by former geological students of the University of Cambridge and University College, London. Remarks were made by Mr. J. E. Marr, Miss Raisin and Prof. W. J. Sollas, and after the portrait had been unveiled Prof. Bonney replied.

THE annual election of officers of the Academy of Natural Sciences, Philadelphia, resulted in the election of Dr. Samuel G. Dixon to the presidency.

CABLEGRAMS state that a violent earthquake shock was felt on December 30, at Wiener, Neustadt, thirteen miles from Vienna.

THE *Weather-crop* Bulletin issued by the Department of Agriculture states that December, 1895, was generally slightly warmer than usual over the northern portions of the country, the average daily temperature excess being greatest in the Missouri Valley and northern New England, where it generally ranged from 3° to 6°. From the lower Ohio Valley northward to and including the southern portion of the upper Lake Region the average temperature for the month was about normal. The month was generally drier than usual in the Atlantic Coast and Gulf States, generally throughout the Rocky Mountain and Plateau districts and in California.

BEGINNING with the current number *The American Anthropologist* will be issued monthly instead of quarterly, and the subscription price will be reduced from \$3 to \$2 *per annum*. The number of pages in the volume will not be diminished. *The American Anthropologist* has during the eight years since it has been established printed a very large number of important papers on archæology, ethnology, folk-lore, sociology, philology and general anthropology, contributed by the leading American students of anthropology.

THE American Economic Association at its recent session in Indianapolis elected Henry C. Adams, of the University of Michigan, Presi-

dent, and Prof. Franklin H. Giddings, Columbia College, E. R. L. Gould, Johns Hopkins University and University of Chicago, and R. P. Falkner, University of Pennsylvania, Vice-Presidents.

THE *Medical News* has been removed from Philadelphia to New York, and Dr. Geo. M. Gould has retired from the editorship. The *Medical News* is one of the few weekly medical journals among the large number published in America that maintains a satisfactory scientific standard.

Nature announces that Prof. Sylvester has been elected an associate of the Brussels Academy of Sciences, Prof. Ray Lankester a corresponding member of the St. Petersburg Academy of Sciences, and Sir William Flower a foreign member of the Royal Swedish Academy of Sciences. The *Naturwissenschaftliche Rundschau* announces that Prof. R. Leuckhart has been elected an honorary member of the Paris Academy of Sciences.

THE *National Geographic Magazine* will hereafter be published on the first of each month under the editorship of Gen. A. W. Greely, Dr. W. J. McGee, Miss E. R. Scidmore and Mr. John Hyde. Subscriptions may be sent to the Secretary of the National Geographic Society, 1515 H street, Washington, D. C.

A REPORT issued from the Hydrographic Office describes the floating ice seen during 1892 and 1893 in the South Atlantic east of Cape Horn. It is said that the icebergs were of such size that they could not have been formed on small, low-lying islands, but only on a large continent of such height that great glaciers could be formed.

A CIRCULAR has been issued by several members of the Connecticut Academy of Arts and Sciences urging that more support be given to the Academy.

DR. JOHN RUSSELL HIND, the eminent British astronomer, died at London on December 23, in his seventy-third year. He was the author of important researches, especially on comets, and published works on this subject and on general astronomy. He was for many years superintendent of the *Nautical Almanac*. He had held the offices of Foreign Secretary and President of

the Royal Astronomical Society, and was a member of the most important scientific societies.

ALFRED E. BEACH died in New York on January 1st. He was one of the proprietors of the *Scientific American* and had made several important inventions, the best known of which is that of pneumatic tubes adjusted for carrying parcels and cars. The deaths are also announced of Robert F. Welsch, a writer of ichthyology; of Prof. A. P. Kostychev, of the Russian Agricultural Department, known for his investigations of soils and agricultural products; of Dr. A. V. Brunn, professor of anatomy in Rostock, and of Dr. Ludwig Teichmann, formerly professor of anatomy in Cracow.

UNIVERSITY AND EDUCATIONAL NEWS.

A BILL to establish a National University at Washington has been introduced in the Senate and House of Representatives. It provides for its government a board of sixteen regents, with the President of the United States at its head, and a University Council, embracing the board and twelve educators, representing institutions belonging to different States.

A TELEGRAM to the *Evening Post* states that Elon College, in North Carolina, has received an endowment fund of \$100,000 from a citizen of New York City, whose name is not at present made public.

PRESIDENT Mark W. Harrington, of the University of Washington, writes that he proposes to establish a department of terrestrial physics and geography in the University, and will be indebted to authors and publishers who will send to the University publications relating to these subjects.

THE N. Y. *Medical Record* states that the Chicago College of Physicians and Surgeons is making arrangements to amalgamate itself with the University of Illinois

It is stated that Mrs. E. G. Kelly, of Chicago, will erect a chapel at a cost of \$100,000 for the University of Chicago, as a memorial to her brother.

DR. DOCK, of the University of Michigan, has

been appointed professor of pathology and bacteriology at Jefferson Medical College in Philadelphia.

WE learn from the *American Geologist* that Prof. W. I. Blake, of New Haven, Conn., has accepted a professorship of geology and mining in the University of Arizona.

DR. HÜFNER, of Tübingen, has been called to the chair of physiological chemistry at Strassburg, vacant by the death of Hoppe-Seyler. Dr. Julius Bauschinger, of Munich, has been made associate professor of astronomy and head of the bureau of calculations in Berlin.

ACCORDING to the *Academische Revue* the number of students matriculated at the University of Berlin is 5368: 486 in theology, 1812 in law, 1258 in medicine and 1812 in the philosophical faculty. There are 776 foreigners, 219 from America, 198 from Russia, 32 from Great Britain, 22 from France, etc. 40 women are admitted as auditors.

CORRESPONDENCE.

THE THEORY OF PROBABILITIES.

TO THE EDITOR OF SCIENCE: It is easier to make true and misleading statements in the subject of probabilities than anywhere else. In this class I should be inclined to place the remark made by Professor Mendenhall, near the close of his article in your issue for December 20, regarding a deal in whist in which each of four players had all the cards of one suit. He says:

"The chances against any other particular distribution of the cards were just as great as against this and * * * the result of every deal of the cards is just as remarkable as this."

To the first part of this statement it is of course impossible to take exception; the second part seems to me misleading, if not untrue. To take another case. The chances of my tossing heads one hundred times running are precisely those of my tossing the particular succession of heads and tails that I do toss in any hundred throws of a coin. But is the former case no more *remarkable* than the latter? It is so much more remarkable that it at once arouses the